The States from which the reports of thunderstorms were most numerous were: Ohio, 475; Pennsylvania, 265; Illinois, 190; New York and Florida, 183; Iowa, 181; and Minnesota, 174.

### AURORAS.

The evenings on which bright moonlight must have interfered with observations of faint auroras are assumed to be the four days preceding and following the date of full moon, viz, from the 13th to the 23d, inclusive. On the remaining twenty-one days of the month 142 reports were received, or an average of 6 per day. The dates on which the reported number especially exceeded this average were the 3d (16), 9th (37), 10th (10). The States from which auroras were reported by a large percentage of observers were: New Hampshire, 9; North Dakota, 23; South Dakota, 16; Wisconsin, 21.

### DAMAGE BY LIGHTNING.

The following statistics of the damage done by lightning in May and June, as reported by the observers of this Bureau, are furnished by Mr. Alex. McAdie.

During May, 1894, 45 persons were killed by lightning; 34 persons were struck and severely injured; 12 barns were set on fire, with an estimated loss of $35,000; 37 dwellings, 4 churches, and 1 schoolhouse were struck and damaged to greater or less extent; 58 horses and 22 cows were killed.

During June, 1894, 96 persons were killed and 102 severely injured; 69 barns were struck, with an estimated loss of $49,000; 49 horses, 30 cows, and 15 sheep were killed; 80 dwellings were struck and more or less damaged; 22 churches, 1 railroad depot, 1 oil tank, 1 grain elevator, and 6 mills and factories were struck, the damage in the case of the eight last-named being not less than $257,500.

## INLAND NAVIGATION.

### STAGE OF WATER IN RIVERS.

The following table shows the danger point and the highest and lowest stages for the month of June, 1894:

*Heights of rivers above low-water mark, June, 1894.*

| Stations. | Danger-point on gauge. | Highest water. | | Lowest water. | | Monthly range. |
|---|---|---|---|---|---|---|
| | | Height. | Date. | Height. | Date. | |
| *Red River.* | *Feet.* | *Feet.* | | *Feet.* | | *Feet.* |
| Shreveport, La. | 29.2 | 17.2 | 1 | 6.0 | 30 | 11.2 |
| *Arkansas River.* | | | | | | |
| Fort Smith, Ark. | 22.0 | 9.8 | 18 | 2.2 | 2 | 7.6 |
| Little Rock, Ark. | 23.0 | 9.9 | 20 | 4.9 | 4, 16 | 5.0 |
| *Missouri River.* | | | | | | |
| Fort Buford, N. Dak. | 25.0 | | | | | |
| Bismarck, N. Dak. | 75.0 | | | | | |
| Pierre, S. Dak. | 13.0 | | | | | |
| Sioux City, Iowa. | 18.7 | 15.7 | 17, 18 | 12.0 | 1 | 3.7 |
| Omaha, Nebr. | 18.0 | 14.9 | 19 | 10.9 | 1 | 4.0 |
| Kansas City, Mo. | 21.0 | 20.1 | 20, 21 | 13.6 | 2 | 6.5 |
| *Mississippi River.* | | | | | | |
| St. Paul, Minn. | 14.0 | 7.1 | 1 | 2.8 | 29 | 4.3 |
| La Crosse, Wis. | 10.0 | 9.5 | 1 | 4.3 | 30 | 5.2 |
| Dubuque, Iowa. | 16.0 | 14.1 | 1 | 4.8 | 29, 30 | 9.3 |
| Davenport, Iowa. | 15.0 | 12.2 | 1 | 3.3 | 29 | 8.9 |
| Keokuk, Iowa. | 14.0 | 11.4 | 4 | 3.5 | 30 | 7.9 |
| Hannibal, Mo. | 17.0 | 12.2 | 5, 6 | 4.3 | 30 | 7.9 |
| St. Louis, Mo. | 30.0 | 18.3 | 29 | 16.7 | 19, 20 | 1.6 |
| Cairo, Ill. | 40.0 | 26.1 | 3 | 17.6 | 28 | 8.5 |
| Memphis, Tenn. | 33.0 | 18.4 | 5, 6 | 11.8 | 30 | 6.6 |
| Vicksburg, Miss. | 41.0 | 25.8 | 10 | 17.2 | 30 | 8.6 |
| New Orleans, La. | 13.0 | 11.0 | 1 | 6.1 | 30 | 4.9 |
| *Ohio River.* | | | | | | |
| Parkersburg, W. Va. | 38.0 | 11.0 | 7 | 3.6 | 25, 28, 29 | 7.4 |
| Cincinnati, Ohio. | 45.0 | 20.6 | 1 | 7.5 | 25, 29, 30 | 13.1 |
| Louisville, Ky. | 24.0 | 9.2 | 1 | 4.6 | 27, 29 | 4.6 |
| *Cumberland River.* | | | | | | |
| Nashville, Tenn. | 40.0 | 6.3 | 1 | 1.7 | 28, 29 | 4.6 |
| *Tennessee River.* | | | | | | |
| Chattanooga, Tenn. | 33.0 | 4.3 | 30 | 2.0 | 17 | 2.3 |
| Knoxville, Tenn. | 29.0 | | | | | |
| *Monongahela River.* | | | | | | |
| Pittsburg, Pa. | 22.0 | 8.4 | 5 | 2.8 | 15 | 5.6 |
| *Savannah River.* | | | | | | |
| Augusta, Ga. | 32.6 | 14.7 | 29 | 4.9 | 15, 18 | 9.8 |
| *Willamette River.* | | | | | | |
| Portland, Oregon. | 15.0 | 33.0 | 7 | 23.3 | 30 | 9.7 |
| *Susquehanna River.* | | | | | | |
| Harrisburg, Pa. | 17.0 | | | | | |
| *Alabama River.* | | | | | | |
| Montgomery, Ala. | 48.0 | 3.4 | 29 | 0.5 | 14 | 2.9 |
| *James River.* | | | | | | |
| Lynchburg, Va. | 18.0 | 1.2 | 8, 9 | 0.2 | {16, 19–21, 23, 25, 26} | 1.0 |
| *Sacramento River.* | | | | | | |
| Red Bluff, Cal. | 22.0 | 5.7 | 5 | 2.0 | 28–30 | 3.7 |
| Sacramento, Cal. | 25.0 | 21.3 | 1 | 16.0 | 30 | 5.3 |
| *Des Moines River.* | | | | | | |
| Des Moines, Iowa. | 19.0 | 3.0 | 1–3, 25–30 | 2.8 | 11–23 | 0.2 |

### FLOODS.

The above table shows that in the rivers here recorded the waters had risen above the danger line at Portland, Oreg., in the preceding month and that the flood in the Willamette and Columbia rivers continued during the whole of June, rising to a maximum of 33.0 feet, on the 7th, at Portland, and having fallen to only 23.5 feet on the 30th.

The following additional notes of floods in rivers are summarized from special reports and newspapers:

*Arkansas River.*—Pueblo, Colo., 6th, the Arkansas River began to rise about daylight, causing Fountain Creek to overflow, damaging bridges and flooding railroad tracks, The floods of May 31st and June 6th are attributed to so-called "cloud-bursts" in the adjacent mountains, or foothills.

*Willamette River.*—The river attained a height of 31.8 feet at Portland, Oreg., on the 4th, and 32.2 feet on the 5th; at midnight of the 6th the river reached its maximum height of 33.0 feet; the inundated portion of the city extended eleven blocks back from the river, and covered the better half of the business portion of the city. The flood far exceeded anything known to history or tradition; the water rose 4.8 feet above the high water of 1890, and 4.7 feet above that of 1876. This flood in the Willamette was principally due to the backing up of its waters by the flood in the Columbia.

*Columbia River.*—On the 5th, at Umatilla, the Columbia was at its maximum gauge reading, 34.5 feet; this great rise is attributed to the melting of the snow during the warm days beginning May 29, when nearly every mountain stream throughout the valleys of the Columbia, Fraser, and Snake rivers was greatly swollen and added greatly to the high water already present in the main streams. The experiences of this remarkable flood have served to emphasize the need of a more complete system of river flood reports for the protection of Portland, Oreg.

*Fraser River.*—At Westminster, on the 7th, the Fraser River reached its highest point, but a special flood wave, due to the cloud-burst at Lytton on the 6th, was expected to arrive the next day and might possibly add a little to this maximum. This flood was like that of the Columbia, several feet higher than any previously recorded and, like it, is attributed to the rapid melting of the snow on the warm days that culminated on the 2d of June when, as before stated, the maximum temperatures for the month were experienced in this section. These unusual temperatures occurred in connection with southerly winds blowing from a region of high pressure over the central Rocky Mountain plateau toward a region of low pressure on the coast of British Columbia, and as little or no rain accompanied them, it is presumable that the high temperatures originated like those of the fœhn winds and the chinook.

*Rio Grande River.*—The Rio Grande, draining the western portion of Colorado, flooded several small regions on the 1st in connection with local cloud-bursts in the mountains and parks of that State.

### LOW WATER AND NAVIGATION.

*Ohio River.*—The very low stage of water in the Ohio River caused the general suspension of river navigation above Maysville during the latter part of the month.